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ABSTRACT

Information is presented about managing collaborative research, focusing on the Small Grants Program (which allows university researchers and school practitioners to join forces and explore problems together with the assistance of a small research grant). The Stanford University setting for research in schools is described with a look at the origins of the Stanford/Schools Collaborative. A discussion of the evolution of the Small Grants Program considers the selection process, issuing the call for proposals, selection procedures, selection criteria, conflicts of interest, and project administration. The Stanford Cadwallader project (to study the concerns of elementary school teachers as they planned for the use of microcomputers in the teaching of writing in their classrooms) is explained in terms of producing the proposal, doing the research, dealing with some issues of collaboration, division of responsibility and leadership, resource management, and maintaining participation. In summary, a look is taken at the traditional model of research, the collaborative model of research, what it takes to carry out collaborative research, and whether or not collaborative research is worth it. Attached are descriptions of the Stanford/Schools Collaborative, a summary of small grants awarded for 1986-88, a description of the Stanford Cadwallader Project 1988, and a project time line. (SM)

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MANAGING COLLABORATIVE RESEARCH: THE STANFORD/SCHOOLS COLLABORATIVE

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MANAGING COLLABORATIVE RESEARCH: THE STANFORD/SCHOOLS COLLABORATIVE

I. Introduction

In 1986-1987, the Stanford/Schools Collaborative received funds from the Hewlett Foundation for a pilot year to plan a long-term agenda for joint initiatives between Stanford University and local elementary and secondary schools. Under the leadership of Principal Investigator Larry Cuban, Director Lynda Greene, and a Steering Committee of fourteen practitioners and academics, the Collaborative tested and began to establish a variety of opportunities for partnerships for addressing issues of common interest. These included a Small Grants Program, a series of Roundtables and Forums, and a Professional Development Center.

Encouraged by the experience of the pilot year and buoyed by a sense of common purpose, the Collaborative applied for and received further funding to establish and operate an array of university-school alliances among teachers, administrators, and School of Education Faculty. According to the funding proposal, the Collaborative intended to:

- Expand and enhance the professional development of teachers and administrators in partner districts through research and support;
- Help improve districts' instruction and curricula through research and support;
- Strengthen the collaborative process between researchers and practitioners in order to shape faculty research agendas and professional training in both university academic departments and the School of Education. (Cuban and Greene, 1987)

The Collaborative now is nearing the end of its third year. To encourage on-going dialogue and interaction, the S/SC sponsors three on-campus Forums for superintendents, principals, and mentor teachers. Taking collaboration a step further, the Small Grants Program and a Mentor Teacher Study Group allow University researchers and school practitioners to join forces and explore problems together with the assistance of a small research grant. The School-Based Change program provides University assistance for schools wishing to implement changes. Finally, the Professional Development Center,

with five member districts, offers opportunities for intense collaboration between University faculty and graduate students and district practitioners through a series of professional development and research programs. (See Appendix A.)

This paper about managing collaborative research focuses on the Small Grants Program. First, we will briefly describe the Stanford setting for research in schools. Then, we will turn to the origins of the Collaborative and the evolution of the Small Grants Program, particularly the general process for deciding which grants receive funding. Discussing this in detail is plenty for a whole AERA session. It is not enough, however, because deciding who gets the money is only the prelude. The major work is the collaboration (or lack thereof) during the twelve to eighteen months practitioners and academics work on the project. That is why we then consider the evolution of one of the small grants projects. In conclusion, we will discuss some concerns related to the management of collaborative research.

II. The Stanford Setting for Research in Schools

Although we believe that there are enough similarities in conditions for collaborative research around the country to make this presentation useful for others, we also believe that unique local circumstances influence the way that collaboration manifests itself and is carried out.

Consider, for example, the diversity within the fifty-eight school districts with which the Collaborative has some relationship. Almost all of them are local, with the large majority from the three counties which lie on the Peninsula from San Francisco to Gilroy (the garlic capital south of San Jose). We deal with a few others in the East Bay and, in the case of one project, with San Diego Unified. We also deal with a few community college districts and independent schools. Collaborative districts include the three types found in California: elementary (K - 8) , high school (9 - 12), and unified (K - 12). Their sizes range from 600 students in La Honda-Pescadero Unified School District to 30,000 in San

Jose Unified. Their locations range from rural to suburban to urban. Their problems range from those of the inner-city struggling with an overwhelming influx of diverse, non-English-speaking immigrants to wealthy suburban districts who want to have small high schools, five tracks of math, and four levels of six languages.

In contrast, there is Stanford, one of a cluster of great universities in the San Francisco Bay Area. With about 13,500 undergraduate, graduate, and professional students, a faculty of about 1,300 members of the Academic Council, and a very healthy endowment, it has tremendous resources spread rather unevenly among the various academic departments and professional schools. (Stanford University, 1988a)

The School of Education, with about thirty-eight faculty members and 330 graduate students (including about 75 in the Stanford Teacher Education Program) is not as large as many of the education schools in neighboring universities. (Stanford University, 1988b) Further, its research orientation has not always been well understood by local school practitioners, who approached the University for practical assistance, only to get theory and policy direction instead. If anyone could have predicted the existence of the Stanford Schools Collaborative ten years ago, he or she would have been greeted with skepticism. How did it happen?

III. The Origins of the Stanford/Schools Collaborative

From the latter part of the 1960's through the early 1980's, the focus of the Stanford School of Education moved from a tradition of teacher and administrator training to that of a strong emphasis on theory-based social science and policy research. Some, ungenerously, might call the resulting outlook "a view from the ivory tower," since the professors generally did not conduct field studies. (Nur, 1986)

The Study of Stanford and the Schools

It was into this ivory tower atmosphere that the Study of Stanford and the Schools was born in 1982-1983, just before A Nation at Risk and five other reform reports were

published. Amidst the new awareness of the importance of education, the President of Stanford University, Donald Kennedy, and the Dean of the School of Education, J. Myron Atkin, announced their commitment to secondary education by establishing the Study of Stanford and the Schools.

The three and a half year Stanford and the Schools Study, financed by the Hewlett Foundation, was a large scale project which involved social scientists from throughout the University. It involved a coordinated effort to collect intense and detailed data from a small sample of schools. One of the project's goals was to strengthen the link in schools between research and practice (Nur, 1986; Atkin, Patrick, and Kennedy, 1989). Another was to assist in furthering one of Stanford President Kennedy's own central goals of establishing a strong public service orientation in the university (Massell, 1987; Atkin, Patrick, and Kennedy, 1989).

Didi Massell, the Collaborative's Program Evaluator during the first pilot year, found that both researchers and practitioners reported there had been friction between them during the Study of Stanford and the Schools: practitioners with the complaint the research agenda from the university bore "little resemblance" to their needs or to the realities of the local context; researchers with the rejoinder that practitioners "do not have the time, or take time, to reflect on their work in a way that would be useful to research."

Massell wrote that, in spite of the deeply entrenched tensions,"The Study of Stanford and the Schools has had a strong effect on the practitioners who were involved" (1987). It contributed to the development of mutual trust, openness, awareness and goodwill between individuals in the two communities. It also provided some important lessons which Professor Larry Cuban, who would be the Principal Investigator of the Stanford/Schools Collaborative, incorporated into his new proposal: 1) the agendas for both the Collaborative and its projects should be jointly determined by both researchers and practitioners; 2) the attention of the new organization should be upon knowledge-applying as well as knowledge-producing activities; 3) the new organization should begin

with "a coherent vision" of what it ought to do, and that vision should reflect the local context without "generating another top-down press upon the schools;" 4) the Collaborative should broaden its scope to include elementary as well as secondary schools and teachers as well as administrators. (Massell, 1987)

Planning for the Collaborative

In May 1986, as the end of funding for the Stanford and the Schools Study approached, Professor Larry Cuban began drafting a proposal to the William and Flora Hewlett Foundation for a new joint enterprise between Stanford and its neighboring school districts. He invited twenty-two area practitioners and faculty to a planning conference to discuss the primary purposes and roles of the new organization, possible research topics, and criteria for disbursing money for seed grants. (Atkin, Patrick, and Kennedy, 1989). These (with some subsequent adjustments) defined core structures, decision making processes, and activities which the Collaborative still uses in 1989.

The participants in the Planning Conference defined the composition of the Steering Committee to include seven practitioners and seven university representatives to represent a cross section of roles in the organizations, including superintendents, principals, teachers, graduate students, and School of Education faculty members. These members of the Steering Committee would be broadly responsible for determining how and for what purposes funds should be dispersed.

Participants at the Planning Conference also set the criteria for awarding seed grants and suggested that they focus upon: 1) curriculum; 2) information management; 3) teacher selection; and 4) demographic changes and the implications for schools.

Finally, the Planning Conference Participants defined what they meant by the term "collaboration" through listing the criteria for judging the success of the Collaborative's processes:

1. Joint agenda setting through all phases of the project, and joint commitment to the project;
2. Norms of collegiality; and
3. Participating faculty and practitioners express their satisfaction with the project and continue their support. (Proposal to Hewlett Foundation for Stanford/Schools Collaborative, 1986)

Massell noted in her "Organizational History and Assessment of the Collaborative" (1987) how closely the criteria resemble Tikunoff and Ward's operational definition of "collaboration:"

- researchers and practitioners work together on all phases of the project;
- the collaborative effort is focused on "real world" as well as theoretical problems;
- both groups gain in understanding and mutual respect;
- the effort is concerned with research and development as well as implementation issues throughout. (Tikunoff and Ward, 1983)

IV. The Evolution of the Small Grants Program

Through the years, the issues related to management of the Small Grants Program at the level of the Steering Committee had clustered broadly around the selection process (distribution of the Call for Proposals, selection procedures and criteria, and problems related to conflicts of interest) and project administration (project duration, human subjects, budgeting and accounting, and reporting requirements).

The Selection Process

Less than two weeks ago, members of the Stanford/Schools Collaborative Steering Committee gathered around the long table in the Dean's Conference Room for their fourth meeting of the year. Committee Chair Jerry Brodkey, a high school math teacher,

resolutely marched the group through the initial agenda items to make time for the main item of business: the awarding of small grants for research projects.

During the Collaborative's first two years, the Steering Committee had issued four calls for proposals, resulting in the funding of twelve research partnerships. The committee members and Collaborative staff had learned much through trial and error about managing this brand of collaborative research,[1] Now in the third year of the Small Grants Program they hoped the selection process would be relatively smooth.

Issuing the call for proposals. The Call for Proposals issued in mid-December reflected much of this hard-won knowledge. (See Appendix B for the 1988-1989 Call for Proposals.) The Steering Committee had directed that the invitation for proposals be extended to the widest area possible and include a reference that the Collaborative staff would assist in making school/university connections.

The response from both practitioners and academics was almost immediate. As in past years, the staff attempted to match interests through circulating materials and through personal contacts. They also answered questions and assisted with proposal development up until the March 1st deadline.

Selection procedures. During the first year, the Steering Committee sent out three calls for proposals and tried three different ways of deciding who should receive funding. The first round of selections in the fall of 1986 called for the development of a proposal task force to sift through the submissions and then make recommendations to the Steering Committee. This process proved too time-consuming because Committee

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1 Note my use of the phrase, "this brand." I use it because, although the Small Grants Program is highly visible, it is only one of the settings for promoting collaborative research within the organization. Members of the Steering Committee, various planning committees, and the staff have established an array of research opportunities which bring together university researchers and school practitioners to work in areas of common interest. For example, the Collaborative's Professional Development Center is sponsoring efforts by the staff of the Stanford Teacher Education Program and on-site supervising teachers to develop and evaluate two new supervision models.

members in their curiosity about why and how the task force's decisions had been reached, duplicated the effort. (Massell, 1987)

The process used for the second round of proposals in 1987 (and continuing to the present) called for Steering Committee members to read all the proposals, rank them in advance by "accept," "conditionally accept," "conditionally reject" and "reject" and then assess them according to the criteria mentioned in the 1986 Proposal to the Hewlett Foundation. If a simple majority of Steering Committee members voted "accept" or "conditionally accept" for any submission, the co-principal investigators were invited to make a presentation during the following meeting. Comments and questions written by the members would be passed on to all submitters. (Massell, 1987)

Selection criteria. Participants in the Planning Conference prior to the Collaborative's pilot year had defined the criteria for small grants selection to be:

- intellectually interesting;
- of practical worth to districts;
- of significance to other districts;
- collaboration should mark each phase of the research from problem definition to implementation and must include implementation (Proposal to Hewlett Foundation, 1986)

These remained the selection criteria until the third round of selections in Spring 1987. At that time the Steering Committee members redefined the criteria by which a project would be assessed.

The new criteria, which would still be used in 1989, were:

- How significant is the issue to the improvement of school(s) or district(s)?
- Is the defined problem worthy of research inquiry?
- What degree of collaboration exists between practitioners and faculty, i.e. is a practitioner listed as co-principal investigator? if the proposal deals with teachers, in what manner are they involved?
- Does the proposal contain a section on implementing research findings in the district?

- What evidence in the proposal indicates that there is a moderate chance for the findings to be implemented?
- How transportable within the district are research directions and/or findings? To other districts?
- Do the methods proposed have the promise of attaining the stated goals? (Massell, 1987)

The second year of the Seed Grants Program brought the issue of whether to approve new proposals sponsored by those who already had received funding. Before they issued a Call for Proposals, the Steering Committee added yet another criterion for evaluating the projects:

- Preference will be given to applicants not previously funded by the Collaborative. (Greene, 1988)

Steering Committee members seemed to have assumed that each project would receive funding only once. But what if the Principal Investigators applied for a second grant? This was the issue presented during the second year when Hank Levin and administrators from San Francisco Unified and Redwood City Elementary Districts requested a second year of funding for their Accelerated Schools Project. After much soul searching, the Committee decided to make a second grant.

Conflicts of interest. During the third round, the committee chair decided that, since two of the submissions came from members of the Steering Committee, all the projects should be presented in order to alleviate possible charges of conflict of interest. Further, those members would leave the room when their proposals came up for discussion, but still be able to vote. As Massell pointed out in her year-end evaluation, these procedures helped alleviate the problems of **direct** conflicts of interest; however the problems connected with **indirect** conflicts of interest could be severe when, for example,

> committee members' colleagues or employees submit a proposal for funding. This becomes particularly problematic when a member's job advancement or security is dependent upon the individual(s) requesting fund from them (Massell, 1987).

Following the advice of the first year evaluation, the Steering Committee had wrestled with several issues related to the Small Grants Program, including how to manage

potential conflicts of interest. In spite of their efforts, committee members still continued to worry when those professors and practitioners denied grants seemed upset with the decision. Paul Goren, Program Evaluator during the second year of the Small Grants Program, reported, "Since the grants are relatively small, the question surfaced as to whether or not the grant program was worth the possible frustration it could cause, especially since it is intended to attract faculty and practitioners to collaborative projects" (1988).

As they neared the end of the second year of the Small Grants Program, Steering Committee members discussed what the direction and emphasis should be for the 1988-1989 school year. With some difficulty in reaching consensus, the committee decided to expand to include projects directed towards school-based change efforts. (Goren, 1988)

Project Administration

Once a project has been selected for funding, the focus changes to attention by the staff to administrative concerns, such as making sure that the principal investigators have complied with university human subjects regulations, facilitating matches between budgeting and accounting procedures across the bureaucracies of Stanford and the school districts, meeting the Steering Committee's and Hewlett Foundation's reporting requirements, and sometimes determining how much longer a project should continue. For the co-principal investigators, being awarded the work of shaping the proposal is only the prelude. Once they obtain funding, one of the major tasks is the collaboration (or lack thereof) during the twelve to eighteen months they engage in the project.

By the end of the second year of the Small Grants Program, the Steering Committee had funded twelve projects in amounts ranging from $12,000 to $15,000. (See Appendix B, "Call for Proposals," for the list of projects.) Each grant has its own personality, peculiarities, and problems. Yet, they all must resolve similar issues revolving around communication, responsibility, leadership, resource management, and obtaining and

maintaining participation of the investigators and the respondents. How do they do it? The case of one collaboration, the Stanford Cadwallader Project, provides some insight.

V. The Stanford Cadwallader Project

Background

The Stanford Cadwallader project was funded to study the concerns of elementary school teachers as they planned for the use of microcomputers in the teaching of writing in their classrooms. It began last spring and we are in the process of analyzing the data collected. After describing the background and interests of the participants, a description of the the collaborative research effort will be given with some preliminary analysis of the nature of the collaboration and its influence on the research. Please be aware that our comments are based on our perceptions at this point in time and do not reflect extensive data analysis.

Cadwallader School is a K-6 school in East San Jose with a student population of 550 students. It was built in 1966 in a middle-class neighborhood with a range of socio-economic backgrounds. The primary earners of a majority of the families are semi-professional or skilled and semi-skilled. The students who live close to the school are from a relatively stable environment, while those who arrive by bus are from a more mobile environment. The ethnic background of the students is as follows: 39% white, 31% Hispanic, 20% Asian, 9% black, 1% other. Although only six percent of the school population is Limited-English Proficient, fifty-seven percent of the sixth grade students did not demonstrate proficiency in written language as evidenced by their class work and district writing proficiency testing.

Prior to Carole Martin's arrival as principal last year (1987), Cadwallader had had three principals in five years. Because the school was considered a place to prepare for retirement, it suffered from a lack of long-range planning, but the staff had become in the process very adaptable.

At the start of the project, Cadwallader had eleven computers and 1 printer. There are now 15 computers and 11 printers in classrooms as a result of locating and tapping resources outside this project.

The teachers at Cadwallader, although very experienced in the classroom, had limited experience with computers prior to the project; some had more experience than others.

Karen Grenz, a third-grade teacher with 24 years of experience, learned about Stanford/Schools Collaborative research grants at a district Technology Committee Meeting. Carole Martin followed up on the information with calls to Stanford and with queries to the teachers. The teachers were interested but a bit hesitant, because they were not sure what they were getting into. None had participated in a collaborative research project before. They hoped however to benefit by becoming more comfortable with using computers in the classroom. They had a curriculum goal of improving their students' written language proficiency and saw the project as an opportunity to examine ways of pursuing that goal with computers with the assistance of Stanford researchers with similar interests.

Decker Walker, an Associate Professor at the School of Education, has written a great deal on curriculum as well as on the potential of computers for education. For several years he has been interested in the phenomenon of incorporating electronic technology, especially computers, in schools and classrooms. He compares the phenomenon to the immovable object meeting the irresistible force. The school is obviously a very enduring social institution, and computers are a major force in twentieth century life.

Educators such as Larry Cuban and Phil Jackson view computers as just another innovation which, like radio, television and film, were supposed to either do away with schools or transform them radically. Computers, they argue, will meet the same fate as their technological predecessors. They will be gathering dust! At the same time, others argue that the power of computers to collect, process, and transmit information is similar

to that of the printing press with its resulting mass literacy phenomenon. The conflict of these two views is the fascinating problem, rather than the technology itself.

During the process of serving as a consultant to science teachers in nearby high schools, he observed that there are a whole host of barriers, big and small, that teachers must confront in order to use computers in the classroom. These added together made a huge barrier to incorporating the new technology.

Before Barbara Buckley became a graduate student in the School of Education at Stanford University, she was a computer coordinator at two elementary schools — creating and teaching curriculum to help students and teachers learn about computers. She had also taught computer literacy and served as a computer resource specialist at a junior college. Walker and Buckley both feel that the greatest potential of computers for educational benefit comes from their use in the classroom as part of academic study.

Producing the Proposal

Lynda Greene, Beverly Carter's predecessor, forwarded several letters to Professor Walker from schools and districts interested in a collaborative research project involving computers in the classroom. Walker and Buckley visited the schools to discuss ideas and possible objectives.

Cadwallader was an obvious match for several reasons. They were at the beginning of the process the academics were interested in. In addition, the school possessed significant resources of its own — a staff of dedicated, professional teachers, an enthusiastic, energetic leader as principal, and district resources such as a district computer coordinator. The resources which the Stanford researchers could bring to the project, complemented those at Cadwallader — access to the research literature, experience in research design and implementation, as well as knowledge about computers. Furthermore, Walker and Buckley believed that the potential benefit of the collaboration, for both Cadwallader and Stanford, would be greater than with a school in later stages of using computers in the classroom.

The participants in this project wished to address complementary and intertwined questions. As part of the proposal, Carol Martin posed a set of practical questions. "We recognize the need to integrate computers into our daily instructional program," she asserted,

> What are our fears?
>
> How can we use the current technology to enhance our program?
>
> How can we work together when our grade level needs are so different?
>
> How can we serve the needs of the students who are beginning to write in English, their second language?
>
> How can we manage the introduction of another variable to the classroom setting? (Walker and Martin, 1988)

Decker Walker posed the research questions from his theoretical and experiential perspective:

> What kinds of concerns do teachers experience and what kinds of difficulties do they encounter as they plan for the use of computers in a central way in their classrooms?
>
> How do these concerns change in the course of a fairly intensive planning effort?
>
> What actions, events, and experiences occurring in the planning process seem to have the greatest impact on teachers' concerns?
>
> What framework is most useful in thinking about the process?(Walker and Martin, 1988)

These questions are basically unchanged from the initial meeting, as further evidence of the match of interests. There was a lot of "to'ing and fro'ing" while working out the steps of the study. Walker and Martin wrote first drafts of the proposal based on their areas of expertise. Subsequent drafts were worked out via phone and mail. Several drafts later, the proposal went off to the Stanford/Schools Collaborative.

Doing the Research

When the project received funding, the real work began. After an initial staff meeting to describe the goals and procedures of the planning effort, Decker Walker held

small group, grade-level discussions with all the teachers to draw out their concerns, their perceptions of the benefits of using computers for instruction, and activities which they felt would be useful. From those discussions, Walker constructed a questionnaire in the teachers' own words which was used to survey the teachers to determine how prevalent various concerns were. Walker and Buckley tabulated the results of the survey and presented them to the planning committee composed of the principal, four teachers, and the Stanford researchers.

With the results in hand, the planning committee generated and proposed activities for the planning effort. The entire staff voted on which activities to pursue. Participation in the project and project activities was voluntary throughout. Activities included, but were not limited to, a hands-on word-processing workshop conducted by the district computer coordinator, visits to schools which were using computers in writing instruction, as well as individual and small group tutoring by Buckley in computer and word processor use. Project activities were well attended. All teachers participated in some of the activities to the extent that they felt an activity was personally useful.

The planning committee also discussed data collection approaches. Several ideas for data collection were put forth by the Stanford researchers, trying to be sensitive to the demands on teacher time that already exist. The approaches finally selected were the result of more negotiation, "to'ing and fro'ing", and included teacher logs and periodic interviews. Again, participation has been voluntary. Walker and/or Buckley were involved in all project activities.

All the classroom teachers, as well as other staff at Cadwallader, were interviewed individually last June to learn what activities each had participated in and their assessment of those activities in particular and the project in general. We encouraged them to reflect on the impact of the project on both school-wide and personal levels in addition to the classroom level which is their customary frame of reference.

Last September more responsibility for project activities evolved onto Cadwallader. The planning committee, with a different set of teachers, continued its efforts in generating possible activities. After an initial hands-on refresher workshop conducted by Buckley, some of the teachers became computer tutors for their peers. Other teachers, fresh from summer workshops and classes, became peer coaches in whole language or writing instruction. Some modeled lessons in another teachers' classroom; some were videotaped as they taught a lesson in their own class. Teachers could then check out the tapes for later viewing. The planning committee developed a workshop devoted to sharing what teachers had learned from their own classroom experiences and workshops. At a staff meeting one teacher demonstrated to the rest of the staff some new word processing software which she had evaluated during a release day.

In January individual interviews were again conducted to learn of teachers' participation, their classroom experiences involving the use of computers for writing instruction, and their assessment of the impact of project activities. The survey of teachers' concerns and the benefits they perceive was again conducted to determine whether changes had occurred. The next step is summarizing and analyzing the data by Walker and Buckley. Tentative conclusions will be discussed by the entire staff.

Dealing with Some Issues of Collaboration

Earlier, we asserted that all of the Small Grants recipients had to resolve similar issues related to collaboration: division of responsibility; leadership; resource management; and maintaining the participation of investigators and respondents. What happened in the case of the Cadwallader Project?

Division of Responsibility and Leadership. The responsibility and leadership for research and project activities varied depending on what needed to be done and who had the expertise to do it. Responsibility for much of the coordination rested on Carole Martin. It was she who arranged for substitutes when teachers made off-site visits or were involved in other project activities such as tutoring, coaching, or being

interviewed. She kept the lines of communication among all participants open and functioning. She kept the project highly visible to the school community by including items in school newsletters and by asking teachers how project activities were going for them. She had to deal with the bureaucracies, and the equipment that didn't work, etc. At the same time that she was encouraging the teachers onward, she was also pacing and balancing the demands placed on them.

Leadership also emerged spontaneously among the teachers as some teachers became very enthused about the project. Carole encouraged them and supported them with release time and facilitated access to new equipment.

Decker Walker took the lead in issues of research design. It was he who suggested that planning to address the concerns of the teachers was more likely to lead to successful use of computers for instruction. He also contributed knowledge about what other schools were doing as well as expertise about computers. Barbara Buckley contributed to both the theoretical and practical aspects of the project. Her background in computer education enabled her to serve as a computer tutor for the teachers as they began to increase their use of computers for writing instruction. From those tutoring sessions, which centered on a particular problem or question posed by the teacher or group of teachers, she gained insights into the kinds of obstacles teachers had to confront. She was also active in data collection and analysis. Both Walker and Buckley served as information resources. Even when they were concentrating on data collection (such as when interviewing), teachers felt very comfortable asking "How do I...?"

Responsibilities also varied over time. In the spring Stanford researchers were involved in all project activities. In the fall, they were deliberately less involved so that the Cadwallader staff could more easily develop in-house collegial sharing of expertise.

The mix of responsibilities change also when you change the size of the lens you use to examine the project and its activities. If you look at the major steps in our research project — defining the problem, designing the research, collecting the data, analyzing the

data and drawing conclusions, the entire process is truly collaborative. School and university contributed to all parts of the process. As you examine increasingly smaller parts of the project, responsibility is more likely to shift according to the expertise of the participants. Care was taken to ensure that contributions from all were sought and welcomed and were considered in all phases.

Resource Management: Obstacles to be Overcome. There were obstacles to be overcome or worked around. Time management was a major consideration. Whether one is collaborating on research or on a presentation, juggling schedules is a challenge. As pointed out earlier, time for research and planning activities had to be worked around district and school inservice schedules. The availability of substitutes for teachers often dictated when teachers could be interviewed or could visit other sites. The fact that the project began in the spring when the school begins to run out of calendar and the staff begins to run out of energy also constrained possible activities. The slow march of bureaucratic accounting and purchasing systems constrained activities by slowing the arrival of equipment and software, but we learned how to work the systems a bit better.

Teacher time and classroom priorities had to be factored into all project activities. They influenced how much literature teachers could be expected to read, and how much data they could be expected to write in the form of logs or journals. Compensating teachers for after-hours time or providing substitutes to release them from the classroom helped, but could not completely ease the constraint.

Equipment provided some roadblocks to progress as well. Learning how to use a computer and trying to use it in a classroom require the presence of reliable equipment. At the beginning of the project, about half the computers were unreliable and there was only one printer. The teachers were very game about taking class disks to the library for printing, but this proved to be another of those barriers to making rapid progress. Using

this project as a focal point, Cadwallader was able to tap other resources of people and money so that the school now has 15 computers and 11 printers in the classrooms.

Maintaining Participation: The Perceived Benefits of this Project. Despite the obstacles, numerous benefits, both anticipated and unanticipated, have emerged from the project. The teachers at Cadwallader have increased their use of computers for educational objectives, and have increased their interaction with each other in support of this project. What was not anticipated was the extent to which this has carried over into other school efforts, such as cross-grade instructional activities. Upper grade and primary teachers are learning from each other. School coaches for computers, writing, and whole language have emerged. School pride has been increased. Teachers learned that their school was not as far behind with computers as they thought, but that they were ahead in attitude. Teachers have also perceived increased student motivation to write, especially among those who are Limited English Proficient. As a result of her involvement in the project, Carole Martin has also been invited to join the Principal's Forum at Stanford, which will result in a still wider network of resources.

One benefit of this research to Stanford lies in the education and support of graduate students. Other benefits arise simply from being in touch with schools. The ability to study an actual problem in a rich, real world context may lead to possible solutions for others with similar concerns. Further, sustained contacts with schools, classrooms, students, teachers, and administrators can powerfully improve researchers' general conceptions of school settings. These understandings, in turn, can lead scholars to ask new questions and seek answers.

It is too soon to say what effect this collaborative research project has had on students, teachers, and the school in the long term or what factors have been most important. We can say that, in the short term, this collaboration has been stimulating from both practical and theoretical perspectives.

VI. Summary and Conclusion: Reflections on Collaborative Research

The Stanford/Cadwallader Project is only one of the twelve projects funded by the Small Grants Program. An examination of the list of names and brief descriptions of these projects (see Appendix B) reveals that they all share two characteristics: a focus on the problems of practitioners and the involvement of those practitioners in the research. It is the imperative to involve practitioners that endows collaborative research with many of its unique needs and characteristics.

The Traditional Model of Research. Consider the characteristics of the research and development model traditionally used in education. This view breaks the research into separate functions which occur linearly, one after the other. The functions include: research, development, and diffusion (Oakes, Hare, and Sirotnik, 1985) or research, development, dissemination, and implementation (Tikunoff and Ward,1983). If the Cadwallader researchers had used this model, then research findings (research) would have been used to develop curriculum materials (development), which would be given to the schools (dissemination), for implementation by individual teachers (implementation). The traditional, linear model causes certain difficulties. The links between each of the stages may be indirect, with little communication between the research, developer, disseminator, and teachers. There may be little or no connection between the theoretical knowledge of the researcher and the practical skills and knowledge of the teacher. The researcher and teacher often operate in isolation and, when they try to communicate in such forums as letters to the editor in the Kappan or in Education Week, seem to speak past one another.

The Collaborative Model of Research. On the other hand, consider the Cadwallader collaborative research project. The underlying assumption of the Steering Committee in awarding the grant to the participants was that practitioners (both teachers and administrators) would be included in all phases of the project, thus insuring that the research would better address and resolve the issues facing the school site. Tikunoff and

Ward (1983) cite three ways in which the collaborative model can alleviate the problems of traditional research in making the connections between researchers and implementers:

- Practitioners who participate in collaborative research feel a greater sense of "ownership" and therefore are more likely to use the results in their classrooms;
- Research problems are defined in language which becomes familiar to both researchers and practitioners; thus they seem more relevant to school site concerns;
- Research projects can be more sensitive to site-specific conditions in all phases. Further, the lines between research, development, dissemination, and implementation are blurred or eliminated so that phases of all these activities may take place simultaneously, thus reducing the time between research, application, and evaluation.

These are all cited advantages of collaborative research, but what are the costs?

What Does It Take to Carry Out Collaborative Research?

Think again about the Cadwallader Project. Think of the investment of time, energy, and money that has been necessary to keep it going. Since some of the basic ideas underpinning collaborative research emphasize the sharing of decision making and responsibility between practitioners and researchers, carrying out these kinds of projects above all requires time: time for planning meetings; time for telephone calls; time for driving to the school site and to the university; time for reflection; time for collecting information; time for data analysis; time for writing; time for getting to know one another; time for developing trust; time for reassurance; time for resolving differences of opinion; time for testing a new idea.

Who has time? Teachers do not have much. Anyone who has tried to communicate with a teacher knows how difficult it can be to leave a message or return a call. The structure of the normal school day requires teachers to be "on duty" for large blocks of time in their classrooms, in the hallways, and on the playground unless there is another responsible adult available to relieve them. What is true of teachers is also true of school administrators and university faculty members. Although both of these have more

discretion about how they structure their time, coordinating their schedules with one another and with teachers can be a formidable task.

Although it is possible for dedicated and determined collaborative research teams to find time "around the edges" of their normal activities, many of the Small Grants projects use their funding to buy time for participants. Thus, the two largest budget items for the Cadwallader project were funds to buy time for teacher participation (substitute time to release teachers from their classrooms and stipends for extra meeting time) and to buy the services of a research assistant to effectively increase the Stanford professor's time. Still, talking about budget items is not sufficient when talking about the costs of time. It completely leaves out the opportunity costs -- what each person gives up in order to participate in the project.

Finally, once the participants have found the time and money to allow the participants to meet, there are other, perhaps more intangible costs, to pay in the form of emotional energy, good will, and determination needed to establish and maintain the open communication and collegial relationships necessary for collaboration.

Is Collaborative Research Worth It?

There is no doubt about it: collaboration is expensive. The question is: Is it worth it? Our answer is a qualified "Yes, if . . . " Collaborative research can be an effective tool, but it is not a universal panacea.

There are several considerations to take into account when deciding whether to engage in collaborative research. One is the nature of the research question. Some kinds of questions lend themselves to collaboration and others do not. For example, the sensitivity of collaborative research to the school site's special needs can be a bane if the desire of the researchers is for more generalizable findings. Another set of considerations revolves around the availability of sufficient resources: time, energy, money, and space (something we have not discussed, but important nevertheless). A final, and perhaps most important set of considerations, is related to the attitudes of the participants toward

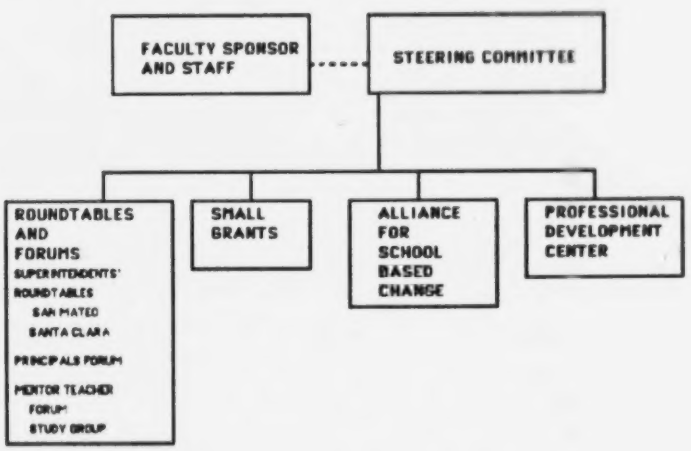
research and towards one another. Investments of time, effort, space, and money can go far to set the stage for collaboration, but they are not enough. Ultimately, people make it happen.

STANFORD/SCHOOLS COLLABORATIVE

The Stanford/Schools Collaborative has established a variety of opportunities for partnerships between Stanford University and local school districts for addressing issues of common interest. A Steering Committee of practitioners and Stanford representatives guides a Roundtables and Forums Program, a Small Grants Program, a School-Based Change Program, and a Professional Development Center.

The Collaborative is in its second year of a three-year plan to continue and expand alliances between the University and local districts. To encourage on-going dialogue and interaction, the S/SC sponsors three on-campus Forums for superintendents, principals, and mentor teachers. Taking collaboration a step further, the Small Grants program allows University researchers and school practitioners to join forces and explore problems together with the assistance of a small research grant. The School-Based Change program provides University assistance for schools wishing to implement changes. Finally, the Professional Development Center, with five member districts, offers opportunities for intense collaboration between University faculty and graduate students and district practitioners through a series of professional development and research programs.

The Collaborative receives funding from the Hewlett Foundation, the David and Lucile Packard Foundation, the Walter S. Johnson Foundation, school districts, and the University.



THE STANFORD/SCHOOLS COLLABORATIVE, 1988-1989

Stanford SCHOOLS

C O L L A B O R A T I V E

SMALL GRANTS PROGRAM
1988 - 1989

The Stanford/Schools Collaborative is conducting a Small Grants Program to encourage Stanford University faculty and school district practitioners to work together to develop and implement collaborative research projects. The program is supported by a grant from the Hewlett Foundation.

The Small Grants Program will focus on the changing needs and characteristics of California's student population and upon school-based change. Teams of Stanford researchers and school practitioners are invited to submit proposals that address this theme in such areas as, but not limited to:

- program development and implementation
- professional development of teachers and administrators
- student serices
- curriculum development
- instructional strategies

Grant Categories

1. Collaborative School Based Change Projects
2. Collaborative Research School Improvement Projects

The Collaborative will award grants up to $15,000. The exact number of grants in each category will be determined during the selection process. Funds for three to four grants are available.

Selection Process and Schedule

Proposals are due March 1, 1989. The Steering Committee of the Stanford/Schools Collaborative will review the proposals and conduct interviews as needed. Grants will be announced by mid-May 1989.

Program Guidelines

1. Stanford faculty members and practitioners must function as co-principal investigators.
2. The co-principal investigators must receive approval from the Human Subjects Office of Stanford University as soon as the grant has been awarded.
3. Projects must be completed by June 1990.
4. Reporting requirements will include a one page report every six months, a final written report, and a follow-up meeting with the Steering Committee to review results and discuss future plans.

School of Education • Stanford University • Stanford, California 94305 • (415) 725-1240

Proposal Format

1. One page project summary.
2. Project description, no more than seven pages, double-spaced. the proposal narrative shoud describe the problem and its importance to the site or the district(s), how the project will be conducted, what are the anticipated results, and how they will be used.
3. Letters of commitment from participating districts and/or school sites.
4. Resumes of the Principal Investigators, both the Stanford faculty members(s) and practitioners(s).
5. Budget.

Criteria for Evaluating Proposals

1. How significant is the issue defined in the proposal to the improvement of school(s) or district(s)?
2. Does the issue deal with changing needs and characteristics of California's satudent population and/or with school based change?
3. Is the problem defined in the proposal worthy of research inquiry?
4. What degree of collaboration exists between practitioners and faculty? Are practitioners and faculty members listed as co-principal investigators? If the proposal deals with teachers, in what manner are they involved?
5. Does the proposal contain a section on implementing research findings in the district? What evidence in the proposal indicates that there is a moderate chance of successful implementation?
6. How transportable within the district are research directions and/or findings? To other districts or schools?
7. Do the methods proposed have the promise of attaining the stated goals?
8. Preference will be given to applicants not previously funded by the Collaborative.

Information and Assistance

Contact Beverly Carter, Director of the Stanford/Schools Collaborative, at (415)723-1483 for additional informatin. Collaborative staff will assist interested educators in making contacts with faculty members or practitioners and will consult on proposal development.

Send Two copies of Proposal to:

Beverly Carter
Stanford/Schools Collaborative
School of Education
Stanford University
Stanford, CA 94305

PROPOSALS DUE MARCH 1, 1989

Stanford SCHOOLS

C O L L A B O R A T I V E

SUMMARY OF SMALL GRANTS AWARDED 1986-1988

1986	**Professor Sanford Dornbusch and Aragon High School** on family - student - school interaction, a continuation of work initiated under the original Stanford and the Schools project.
1986	**Professor Edwin Bridges and Mountain View-Los Altos Union High School District** on the process of teacher selection.
1986	**Professor Henry Levin and schools in San Francisco Unified School District and Redwood City District** to develop and pilot the Accelerated Schools Project.
1987	**Biology Professor Paul Ehrlich and piloting teachers** on developing a conservation biology curriculum for secondary level science classes.
1987	**Professor Martin Ford and Palo Alto Unified School District** to study a peer-counseling program developed by Palo Alto High School.
1987	**Professor Shirley Heath and Redwood City School District** to study the whole language instruction method using cross-age tutoring by language minority students.
1987	**Professor David Rogosa and San Diego City Schools** to to study methods for assessing student progress by data management and reorganizing student records.
1988	**Professor Martin Carnoy and Santa Clara and Eastside School Districts** to develop action programs for dropout reduction.
1988	**Professor Henry Levin and San Francisco School District and Redwood City School District** to continue the Stanford Accelerated Schools Program.

1988 **Professors Gavin Wright and John Shoven of the Stanford Economics Department, Milo Gwosden (high school teacher), and the four Professional Development Center Districts (Palo Alto Unified, San Mateo Union, Sequoia Union, and Mountain View-Los Altos Union)** to develop and test a pilot program to improve the economics education of high school students by stimulating the professional development of teachers.

1988 **Professor Decker Walker and Evergreen School District** to study concerns of teachers as they plan the possible use of computers in teaching writing in their classrooms.

1988 **Professor James Greeno and Carlmont High School** to develop new ways to teach problem-solving skills for low and average skills students.

1988 **Professor Thomas Huebner and Campbell Union High School District** to study foreign language proficiency testing in secondary schools.

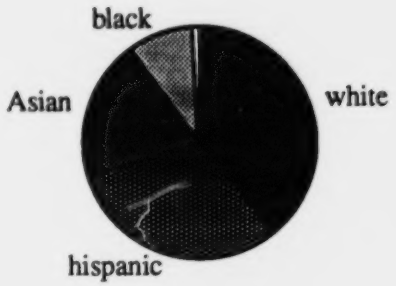
Major funding of the Small Grants Program comes from the Hewlett Foundation. Stanford University and the school districts provide donations in kind.

Stanford Cadwallader Project 1988

The Stanford Cadwallader Project is a Small Grants Collaborative Project funded by the Stanford/Schools Collaborative. The practitioners are located at Cadwallader Elementary School, 3799 Cadwallader Rd, San Jose, CA 95121

Cadwallader Elementary School

- Experienced teachers with little computer experience
- 550 K-6 students
- majority of primary wage earners
  - semi-professional
  - skilled and semi-skilled
- Ethnic composition of students



Cadwallader's questions:

"We recognize the need to integrate computers into our daily instructional program.

What are our fears?

How can we use the current technology to enhance our program?

How can we work together when our grade level needs are so different?

How can we serve the needs of the students who are beginning to write in English, their second language?

How can we manage the introduction of another variable to the classroom setting?

Stanford's questions:

What kinds of concerns do teachers experience and what kinds of difficulties do they encounter as they plan for the use of computers in a central way in their classrooms?

How do these concerns change in the course of a fairly intensive planning effort?

What actions, events, and experiences occurring in the planning process seem to have the greatest impact on teachers' concerns?

What framework is most useful in thinking about the process?"(Walker and Martin, 1988)

Project TimeLine:

January 1988: Initial meeting between Walker and Martin

February 1988: Proposal Submitted to Stanford/Schools Collaborative

March 1988: Project Funded by Stanford/Schools Collaborative

April - June 1988: Phase I of Project Activities

Teachers' concerns elicited
Planning committee proposed activities to address those concerns
Activities include:
- site visits to other schools
- wordprocessing workshop
- computer tutoring as teachers try using computers in classrooms

Stanford involved in all activities; joint responsibilities
Individual interviews to elicit participation in and evaluation of project

September 1988 - February 1989: Phase II of Project Activities

Cadwallader has primary responsibility for project activities

Activities include:
- recruitment and training of student and parent tutors
- model lessons presented by school coaches are videotaped
- workshop for sharing classroom and inservice experiences
- evaluation and purchase of additional software

Interviews and concerns surveys conducted by Stanford